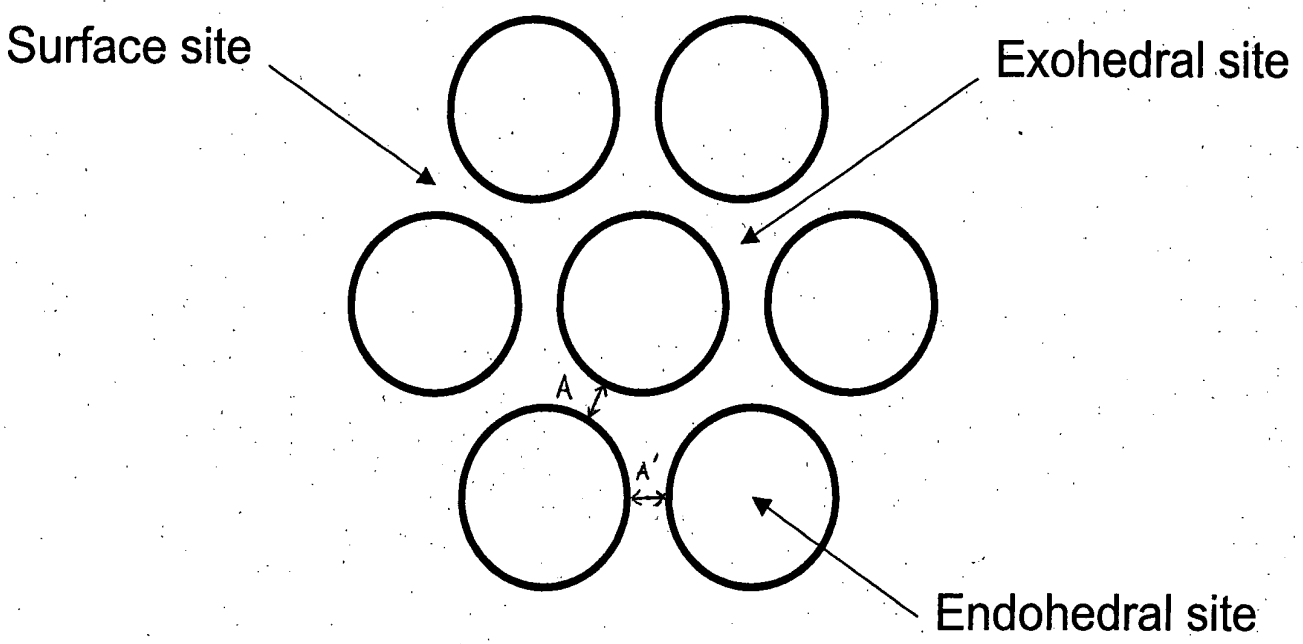

Figure 1

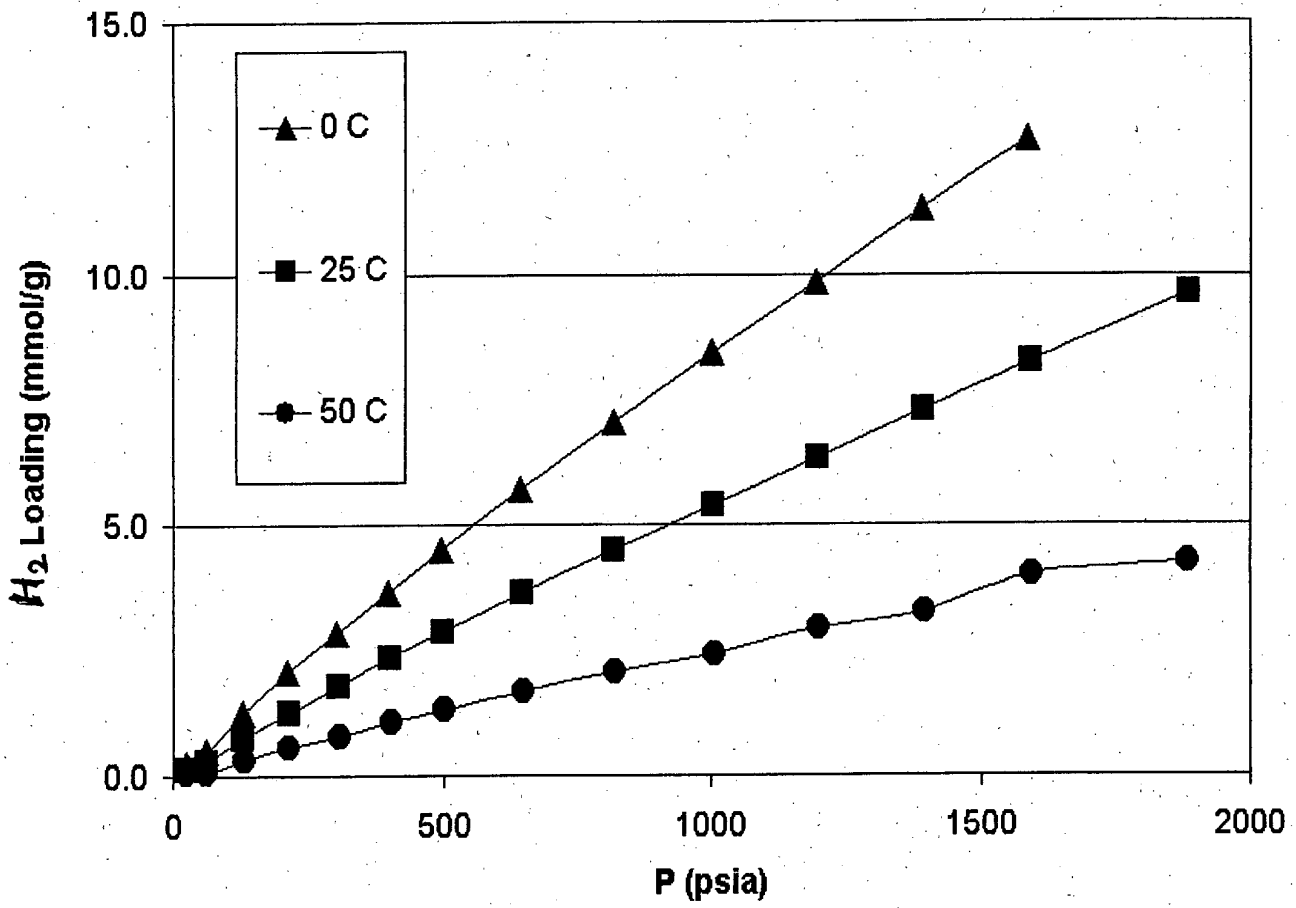
15.0
10.0
5.0
0.0
0 C
25 C
50 C
H_2 Loading (mmol/g)
0
500
1000
1500
2000
P (psia)

Figure 2

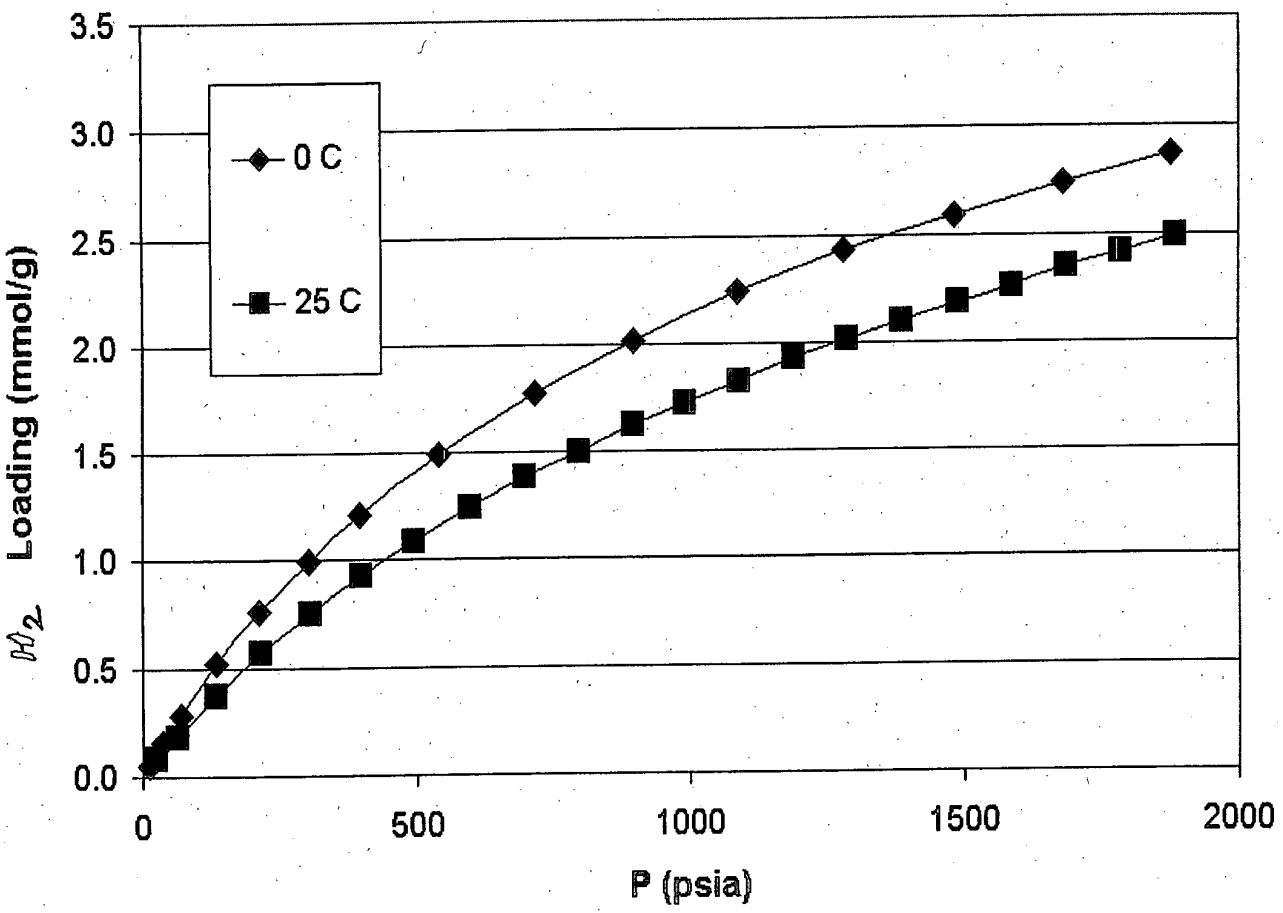
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0 C
25 C
H_2 Loading (mmol/g)
0
500
1000
1500
2000
P (psia)

Figure 3

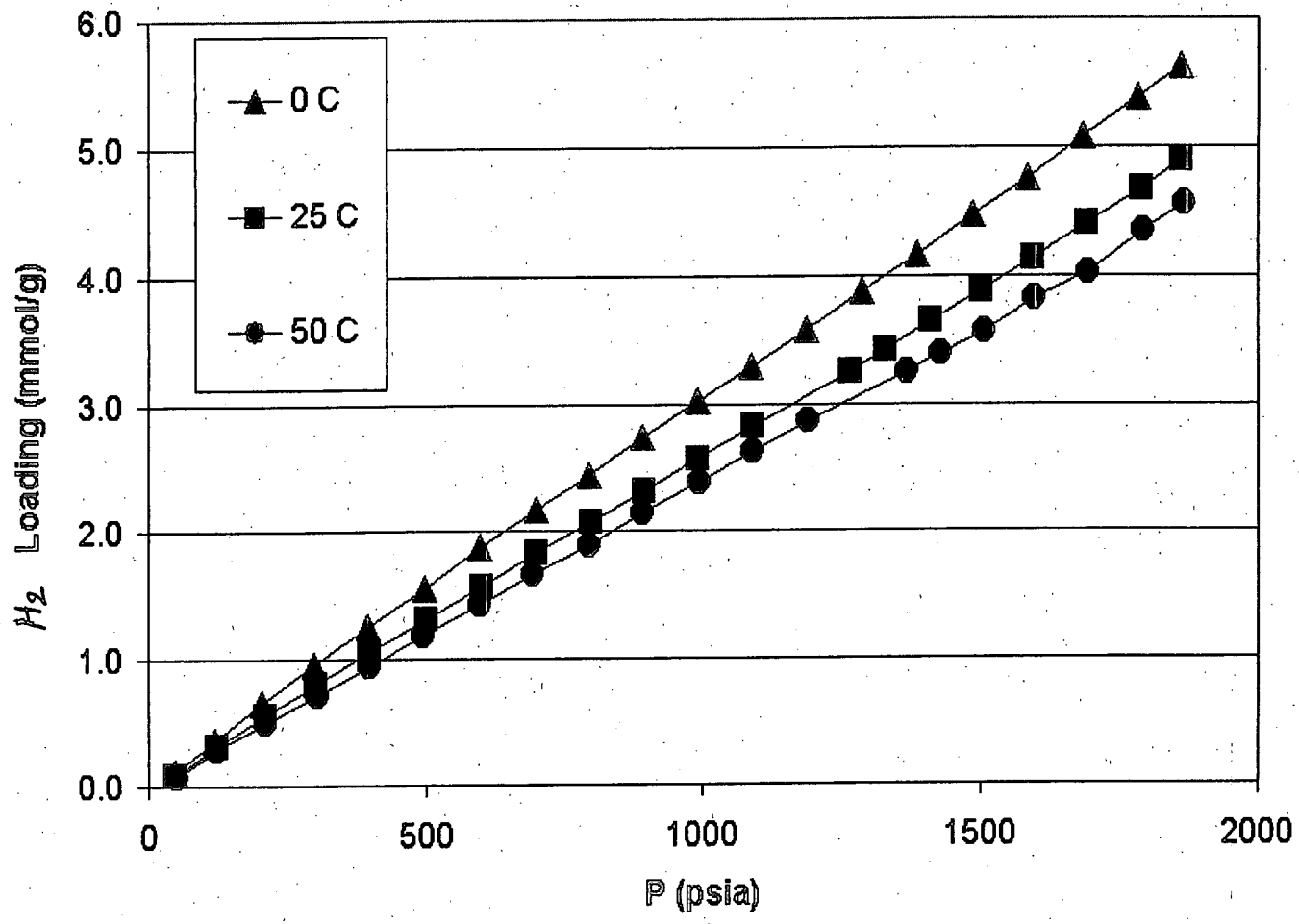
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0 C
25 C
50 C
H2 Loading (mmol/g)
0
500
1000
1500
2000
P (psia)

Figure 4

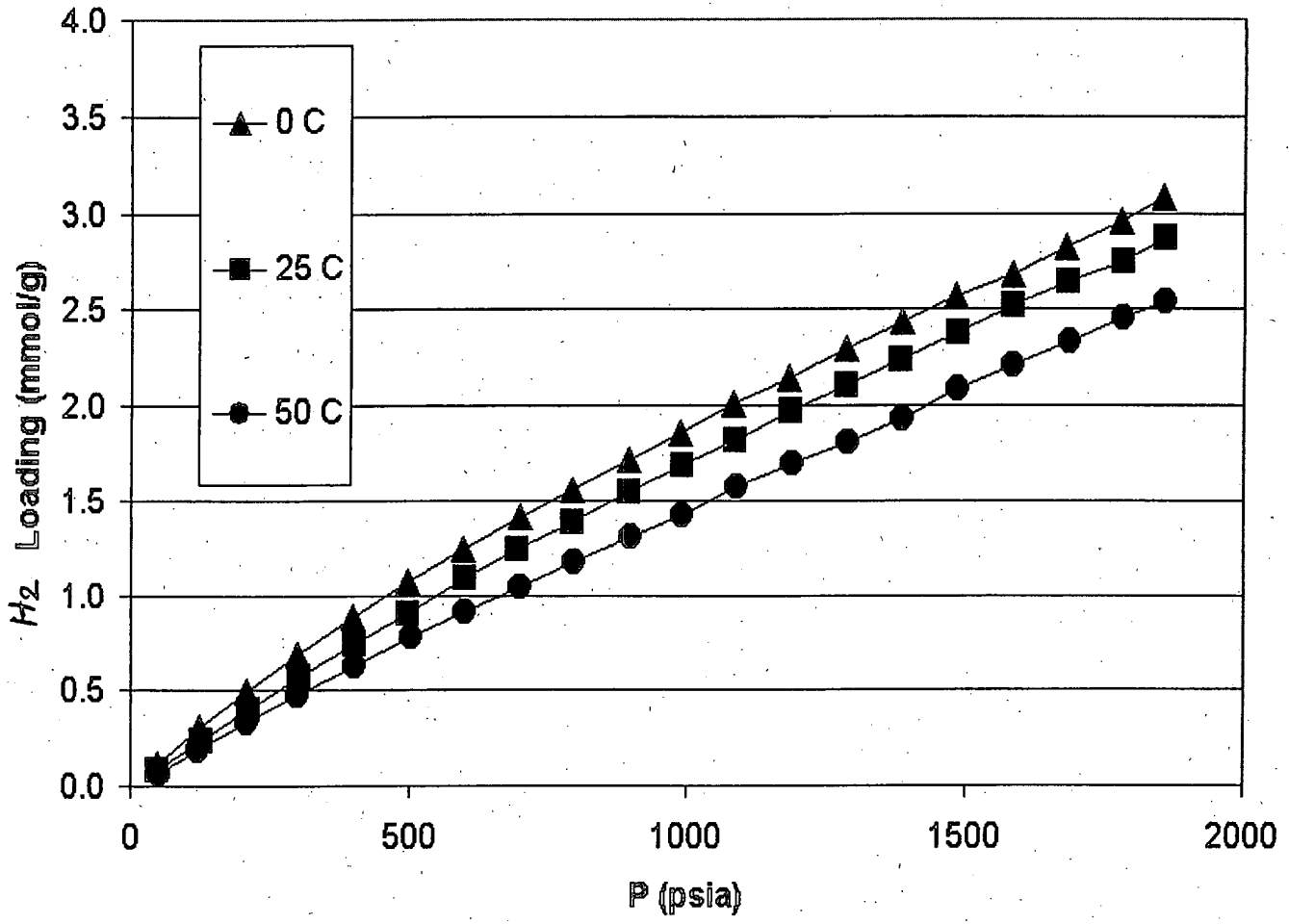
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0 C
25 C
50 C
H2 Loading (mmol/g)
0
500
1000
1500
2000
P (psia)

Figure 5

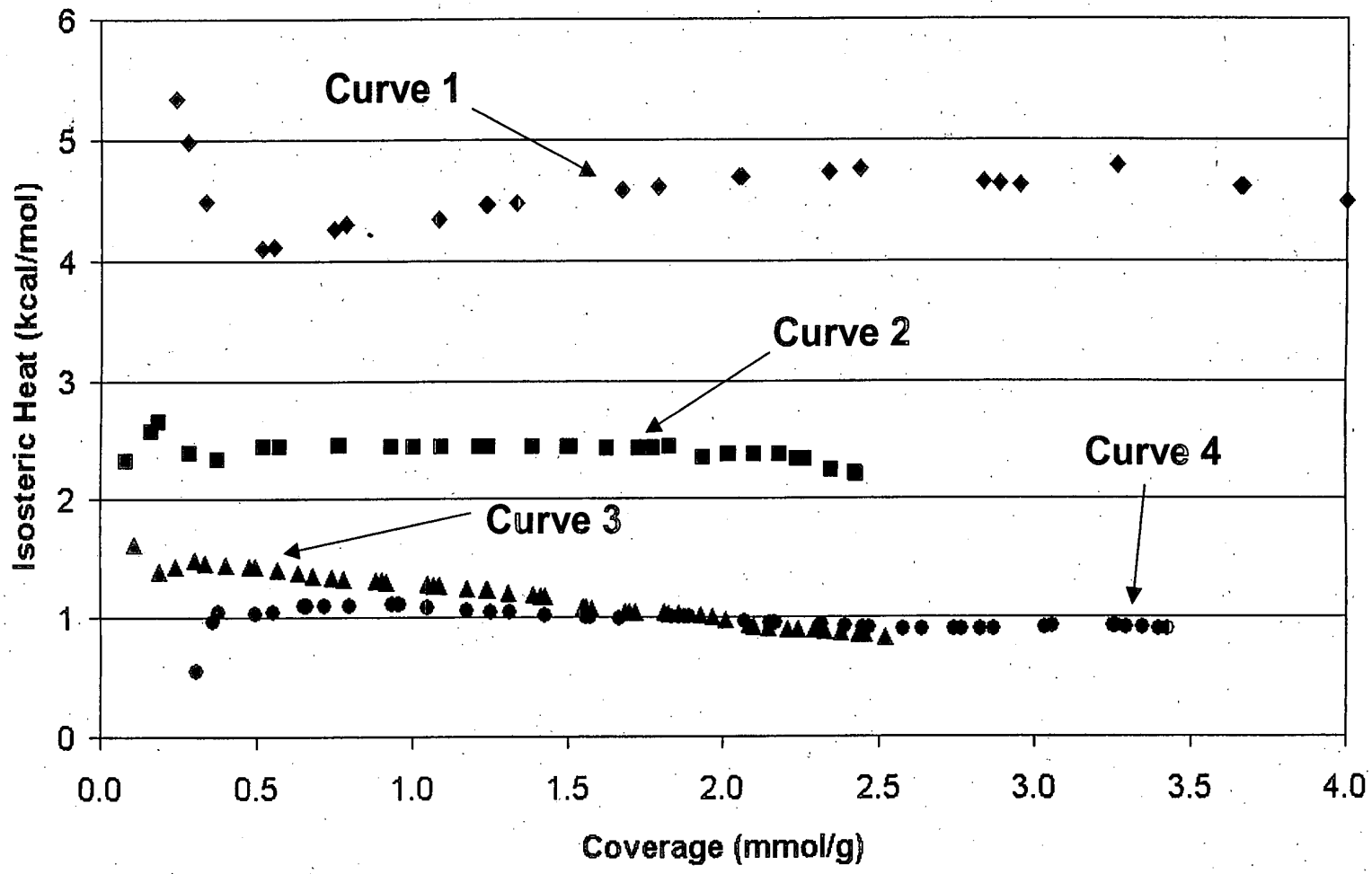
Curve 1
Curve 2
Curve 3
Curve 4
Isosteric Heat (kcal/mol)
Coverage (mmol/g)
0
1
2
3
4
5
6
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0

Figure 6

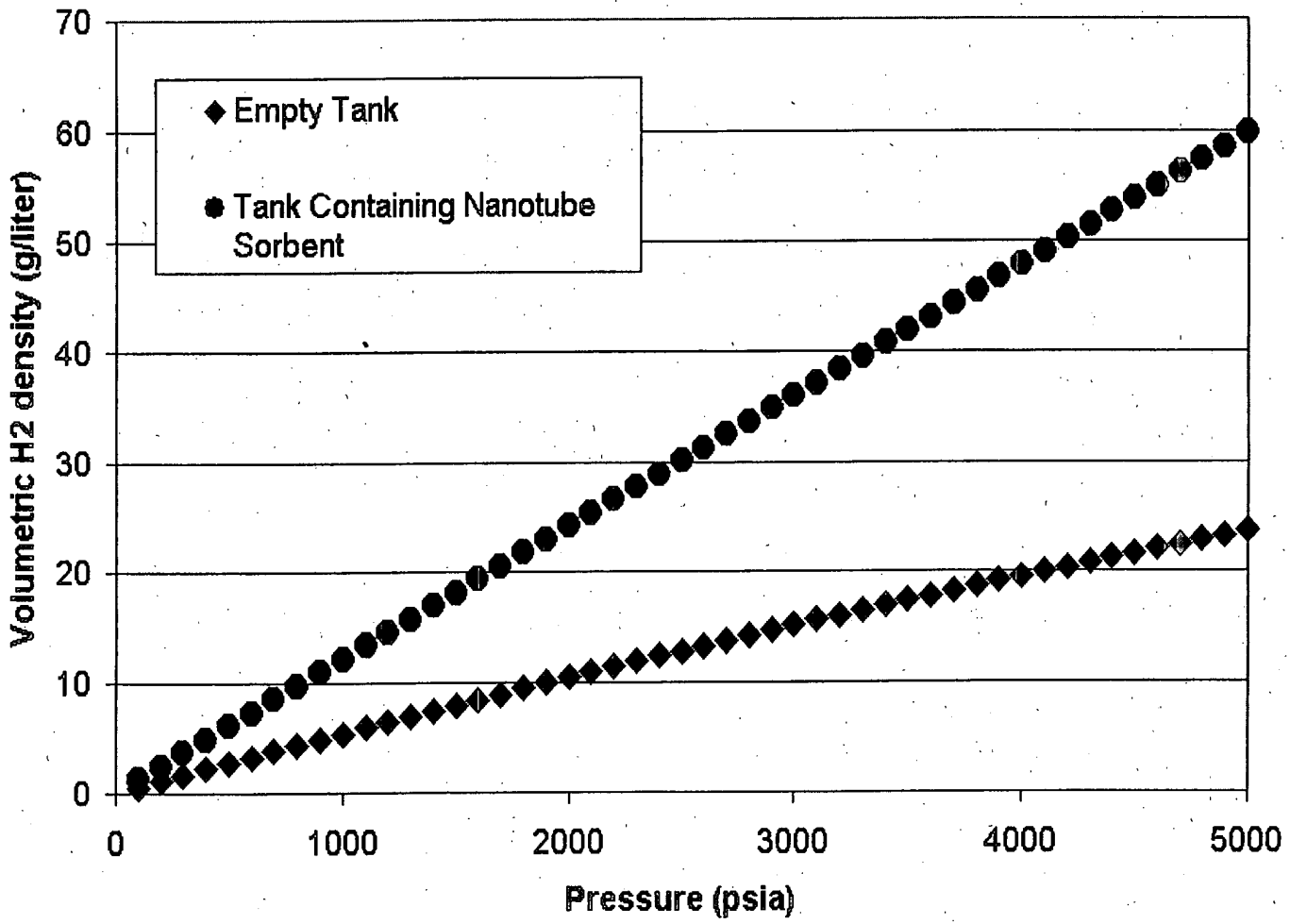
70
60
50
40
30
20
10
0
Volumetric H2 density (g/liter)
Empty Tank
Tank Containing Nanotube Sorbent
0
1000
2000
3000
4000
5000
Pressure (psia)

Figure 7

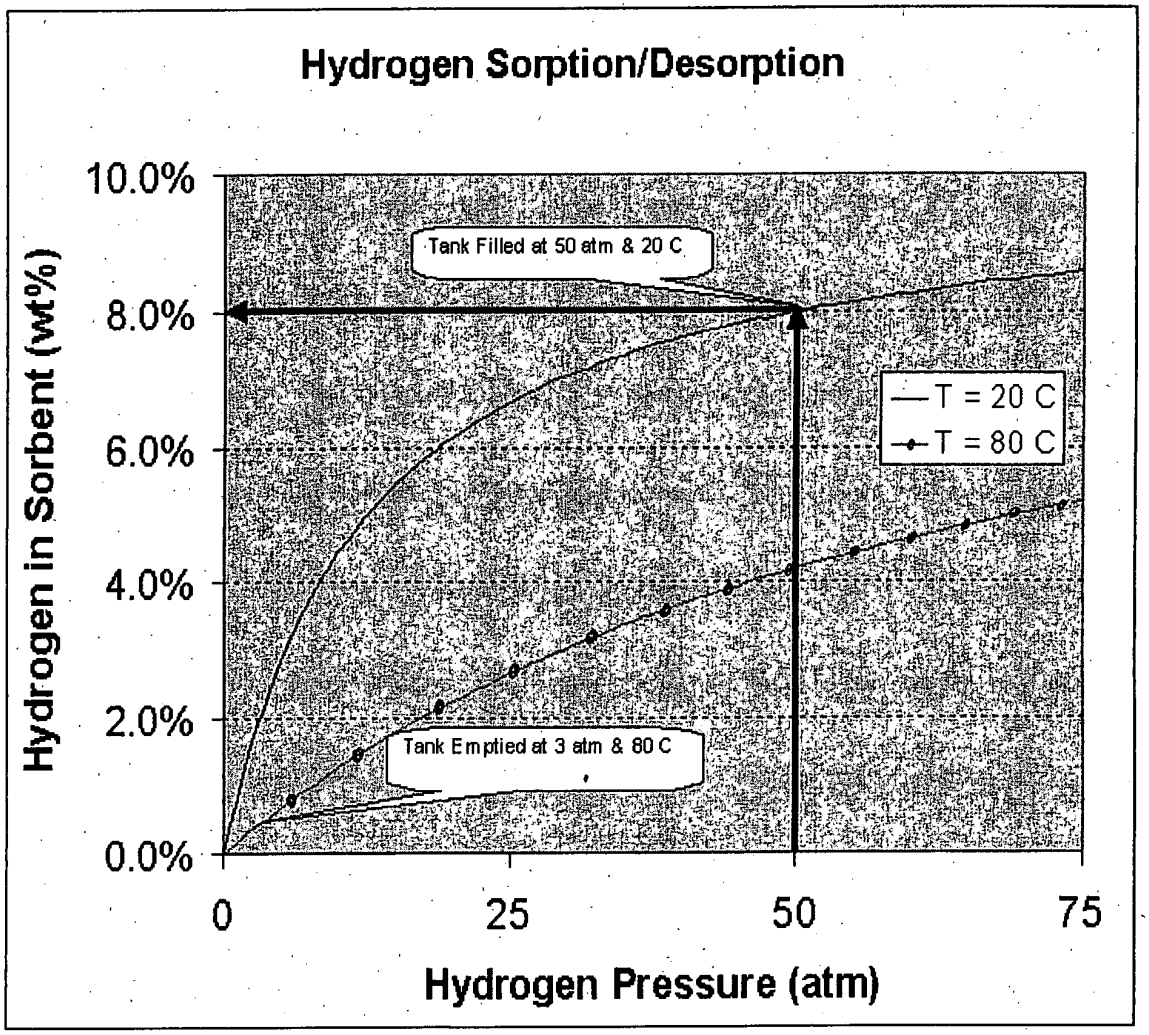
Hydrogen Sorption/Desorption
Hydrogen in Sorbent (wt%)
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
Tank Filled at 50 atm & 20 C
Tank Emptied at 3 atm & 80 C
T = 20 C
T = 80 C
0
25
50
75
Hydrogen Pressure (atm)

Figure 8

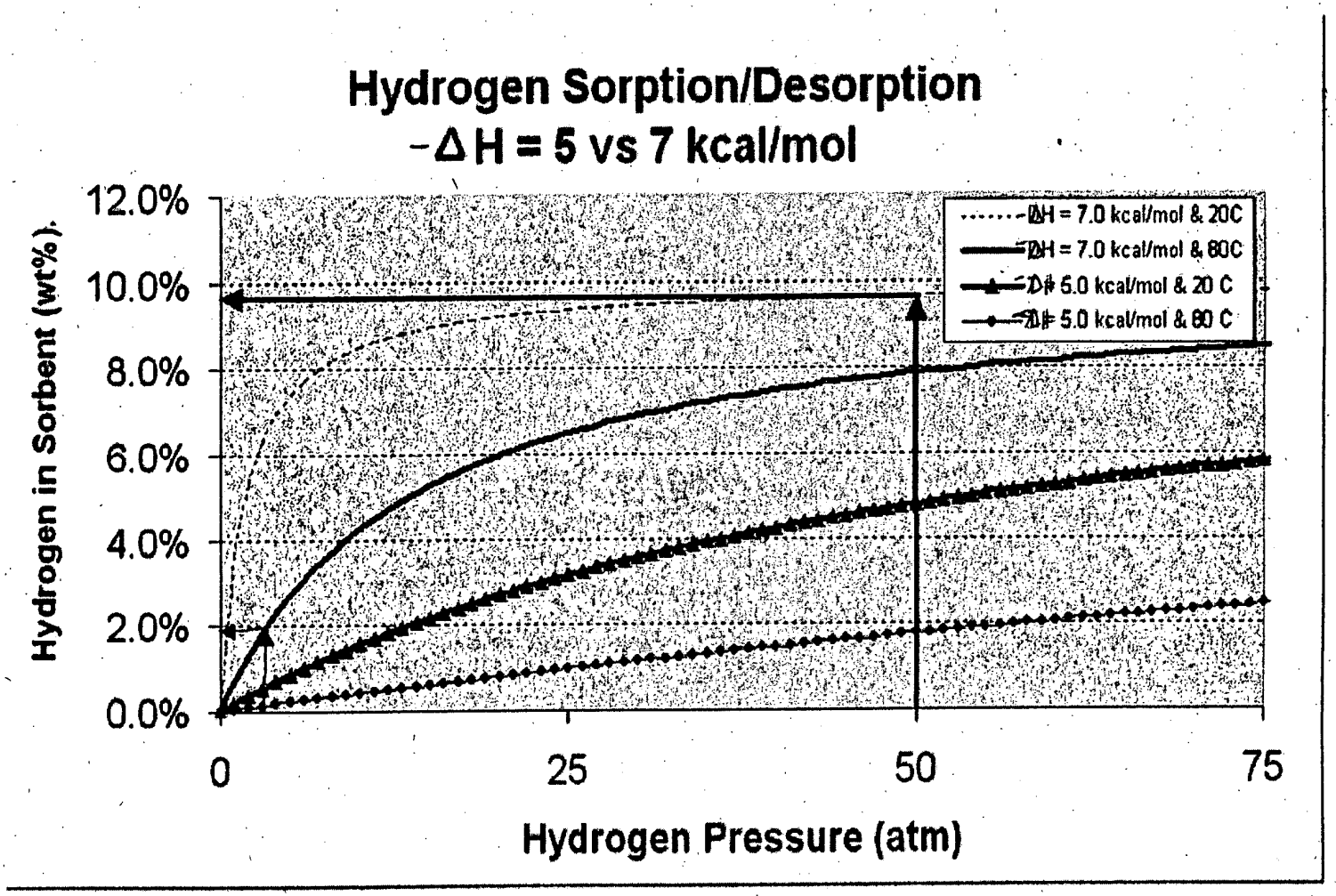
Hydrogen Sorption/Desorption
-ΔH = 5 vs 7 kcal/mol
Hydrogen in Sorbent (wt%).
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
0
25
50
75
Hydrogen Pressure (atm)
ΔH = 7.0 kcal/mol & 20C
ΔH = 7.0 kcal/mol & 80C
ΔH = 5.0 kcal/mol & 20 C
ΔH = 5.0 kcal/mol & 80 C

Figure 9